



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

11A

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,425	01/07/2005	Michael Stewart Griffith	033963-014	5697
21839	7590	11/06/2006	EXAMINER	
BUCHANAN, INGERSOLL & ROONEY PC			ROBINSON, MARK A	
POST OFFICE BOX 1404				
ALEXANDRIA, VA 22313-1404			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 11/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/520,425

Applicant(s)

GRIFFITH ET AL.

Examiner

Mark A. Robinson

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 3, 7, 16-24 and 26-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-6, 9-15 and 25 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 1/7/05, 2/6/06.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election with traverse of the species shown in fig. 11 in the reply filed on 9/5/06 is acknowledged.

Applicant has argued that there is no undue burden in the examination of all of the claims to all of the species.

However, applicant has not provided evidence or other rationale to support this statement.

Applicant has also argued that the requirement is in error since the generic claims are considered to be allowable.

However, no indication of allowability has heretofore been made by the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1,2,4-6,8-15 and 25 read on the elected species and will be examined as follows.

Claims 3,7,16-24 and 26-28 are withdrawn from consideration as being directed to non-elected subject matter.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 2872

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims recite that the compliance of the support elements is adjusted according to the position of the support element. This seems to imply that the compliance is actively varied. However, the specification seems to teach that the particular degree of compliance of each support element varies depending upon the particular position of said support element. Appropriate correction and/or clarification is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1,2,9 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Krim (US 5831780).

Art Unit: 2872

Krim discloses a deformable mirror and holder including a body(1) with a receiving portion for receiving a deformable mirror(6) and defined by a plurality of discrete, spaced, passive flexible support structures(16) connecting the mirror substrate and body which may provide a supporting surface to the mirror (see figs. 3,5,6,etc.).

Regarding claim 9, note that integral is sufficiently broad so as to encompass the joined structures shown by Krim.

Regarding claim 25, note that mirror 6 includes both a reflective surface and a layer of deformable material operable to deform the mirror.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1,2,4-6,9 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plante (US 4655563) in view of Clemino (US 4670338).

Art Unit: 2872

Regarding claims 1 and 2, Plante discloses a deformable mirror and holder including a body(20) with a receiving portion for receiving a deformable mirror(10) and defined by a plurality of discrete, spaced, passive support structures(16) connecting the mirror substrate and body which may provide a supporting surface to the mirror (see figs. 3,5,6,etc.). Regarding claim 9, note that integral is sufficiently broad so as to encompass the joined structures shown by Plante. Regarding claim 25, note that mirror includes both a reflective surface(14) and a layer of deformable material(10,12 or 18) operable to deform the mirror.

Plante further discloses an epoxy as part of the support structure (col. 3 line 22; col. 4 lines 40-43) which would be flexible to some degree. However, inasmuch as "flexible" or "compliant" as in claims 1 and 6 is not taught by Plante, it is disclosed by Clemeno (note col. 5 lines 37-43). It would have been obvious to the ordinarily skilled artisan at the time of invention to use a flexible epoxy adhesive as taught by Clemeno as the epoxy disclosed by Plante in order to enable the absorption of stresses and other advantages disclosed by Clemeno (col. 7 lines 43-50).

Regarding claims 4 and 5, Plante shows some of the support elements to be in a circular arrangement (e.g. two or three of

Art Unit: 2872

the elements would lie on an imaginary circle), with each positioned to be in contact with one different electrode (see fig. 3).

### ***Allowable Subject Matter***

8. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest the support elements to be formed of conducting compliant foam such that they permit electrical connection to a number of mirror electrodes as set forth in the arrangement and combination of claim 8.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patents to Bailly and Fuschetto disclose deformable mirror holders with passive flexible support structures providing a supporting surface to a mirror.

Art Unit: 2872

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Robinson whose telephone number is (571) 272-2319.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn, can be reached at (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2800.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MR

10/31/06

  
MARK A. ROBINSON  
PRIMARY EXAMINER